

## **GOLF PRACTICE TARGET SYSTEM**

### **PRIORITY CLAIM**

The present application claims priority to U.S. Provisional Application No. 60/440,533,  
5 filed January 16, 2003 and entitled, "GOLF PRACTICE TARGET SYSTEM," and hereby  
incorporated by reference in its entirety.

### **FIELD OF INVENTION**

The present invention relates to golf practice targets. More specifically, the present  
10 invention relates to an apparatus and method for practicing golf including a system of portable,  
dish shaped golf targets having an energy absorbing structure, the targets being individually and  
selectively positionable, as to height and target angle, with respect to the ground.

### **BACKGROUND OF THE INVENTION**

15 Golf courses have overbuilt over the last few years in relationship to demand.  
Consequently, the golf market is highly competitive. Many golf facilities recognize this and are  
adding products and services to attract golfers to their facility. An example of one such product  
is the Global Positioning System (GPS) on golf carts which helps golfers with yardage, pace of  
play, and golf course information.

20 Golf is a target sport. When a golfer is playing a longer hole such as a par 4, on the first  
shot the target is the fairway, then the target for the second shot is the green, and then the target  
for the third shot is the golf hole which potentially results in a birdie. There are some drawbacks  
to current golf ranges and practice areas with respect to providing suitable targets. The typical

golf range has small yardage signs that are difficult to see as the yardage increases. There are also not enough yardage signs. Most ranges have little or no visible targets. The visible targets tend to be too small, poorly positioned on the ground, and incapable of retaining a golf ball that hits the target. When the golf target or target green is positioned on the ground, or even a few  
5 feet above the ground, the golfer from the tee-line can only see parts of the target or target green. The target becomes less visible as distance increases. Many people start having difficulty seeing the entire target starting at as little as 50 yards under good conditions of weather and no terrain undulation.

There are a number of targets previously disclosed in the art. For example, U.S. Patent  
10 No. 5,580,320 discloses a target green configured to appear as a full-scale green when viewed from a distance. U.S. Patent No. 4,202,547 discloses a movable golf green on a predetermined track. U.S. Patent No. 5,370,389 discloses a system where a golf game can be played on the driving range by the hit golf ball going into a hole on stationary ground targets. U.S. Patent No. 6,083,114 discloses a foldable and movable golf target. U.S. Patent No. 5,439,224 discloses a  
15 scoring system for driving ranges that use universal product codes on each golf ball passing through the targets to record pertinent information. U.S. Patent 5,782,700 discloses a golf target ring with a flat circular area for practicing golf shots. However, none of these examples provide for a target that is clearly visible from the tee line.

There is a need for an elevated golf target that is shaped for a realistic golf experience  
20 and that simultaneously provides the golfer with visual feedback during practice.

SUMMARY OF THE INVENTION

The elevated golf target of the present invention provides golfers with maximum visibility of the target and an ability to immediately determine the success of their golf shot. The elevated golf target comprises a dish shaped target assembly, a vertical support assembly and a  
5 base assembly. A golf ball is retained within the perimeter of the target assembly through the combination of an impact absorbing target surface, the concave shape of the target and an projecting perimeter wall. In addition, the target assembly can include a visual display providing information to a golfer. The target assembly is attached to the vertical support assembly such that both the angle of the target assembly with respect to the ground as well as the height of the  
10 target assembly are adjustable.

The base assembly includes at least two wheels such that a range operator can easily change the location of the elevated golf target on the range. The base assembly can further include towing means such that the base assembly can be positioned using a manual or motorized golf range implement. In an alternative embodiment, the base assembly can comprise  
15 a drivable cart with a self-contained drive source for positioning the elevated golf target.

Furthermore, the present invention is a method for adjustably configuring a driving range using one or more portable, elevated golf targets. Variables such as distance, target presentation angle and target height can be manipulated to provide golfers with a plethora of target presentations. In addition, a plurality of elevated golf targets can be used simultaneously to  
20 provide the golf range with a configurable and adjustable target system.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of an embodiment of an elevated golf target of the present invention.

FIG. 2 is a front view of the elevated golf target of FIG. 1.

5 FIG. 3 is a rear view of the elevated golf target of FIG. 1.

FIG. 4 is a side view of the elevated golf target of FIG. 1.

FIG. 5 is a bottom view of the elevated golf target of FIG. 1.

FIG. 6 is a plan view of the elevated golf target of FIG. 1.

10 FIG. 7 is a perspective view of an embodiment of a motorized, elevated golf target of the present invention.

FIG. 8 is a perspective view of an embodiment of an elevated golf target of the present invention.

FIG. 9 is a perspective view of a driving range utilizing a plurality of elevated golf targets of the present invention.

15 FIG. 10 is a perspective view of an embodiment of an elevated golf target of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

As depicted in FIG. 1, an elevated golf target 100 of the present invention comprises a  
20 target assembly 102, a vertical support assembly 104 and a base assembly 106. In general, elevated golf target 100 is configurable in a multitude of positions including tiltable adjustment of the target assembly 102 with respect to the ground and vertical adjustment of the target

assembly 102 with respect to the ground. In addition, base assembly 106 provides portability to the elevated golf target 100. All of these features are further discussed in the following description.

In an embodiment as shown in FIGS. 1-6, target assembly 102 is preferably dish shaped with a diameter of between 5-20 feet. The target assembly 102 comprises a target surface 108, an upwardly projecting perimeter wall 110 and a support structure 112. Target surface 108 can comprise at least one target hole 114 including a target flag 116. Preferably, target hole 114 has a diameter of 4-16 inches. An adjustable flag bracket 117 extends across the target hole 114 for receiving, retaining and positioning the target flag 116 in an upright position with respect to the ground. In addition, target surface 108 can include at least one collector hole 118. Preferably, collector hole has a diameter of 4-16 inches. In a preferred embodiment, target surface 108 comprises artificial turf, for example field turf, resembling natural grass that includes means to promote water drainage and allow wind to pass through.

Support structure 112 comprises an exterior wall 120, a plurality of support ribs 122 extending from exterior wall 120 to a common rib intersection 124, and a plurality of cross-members 126 arranged between the support ribs 122. The support ribs 122 and cross-members 126 are spaced apart so as to define a plurality of support openings 128. Rib intersection 124 is coupled to a tilt bracket 130 having a tilt bracket throughbore. Tilt bracket 130 can include a grooved surface. Target surface 108 is placed over and attached to the support structure 112 at the exterior wall 120. A rear side 131 of target surface 108 includes a plurality of spaced apart attachment clips 133. A plurality of attachment straps 135 are wrapped through the attachment clips 133 and attached around the cross-members 126 to loosely retain the target surface 108 to

the cross-members 126. By loosely retaining the target surface 108, the target surface 108 can sag which helps to absorb the impact energy of golf balls that hit the target surface 108 as well as allowing the target surface 108 to flutter with the wind as opposed to retaining wind and acting as a sail. Once target surface 108 is fully attached, an air gap 132 is defined between the bottom  
5 of the target surface 108 and the support ribs 122 and the cross-members 126. The upwardly projecting perimeter wall 110 is attached to and projects upwardly from the exterior wall 120. The support structure 112 can be manufactured of any material possessing characteristics including strength, low weight and durability. Suitable materials could include metals such as aluminum, polymers such as fiberglass or ceramic composite materials.

10 Target assembly 102 can further include a visual display 134. Visual display 134 can be supported from exterior wall 120 with a pair of display supports 136a, 136b. As depicted, visual display 134 includes a visual symbol 138 indicating target yardage. Visual display 134 can be configured to display visual symbol 138 either continuously, i.e., a sign, or visual display 134 can be electronic and capable of adjustably changing the visual symbol 138 through an electronic  
15 input. Whether continuous or electronically adjustable, visual symbol 138 can display a variety of visual information for example, advertising, teaching slogans, video broadcasts, stock tickers, tee box status and/or sports results.

As depicted in FIGS. 1-4, vertical support assembly 104 is adjustable and comprises a telescoping interior vertical support 140 and an exterior vertical support 142. Alternatively,  
20 vertical support assembly 104 can comprise a single vertical support available in either a plurality of differing lengths or including a plurality of throughbores for adjusting height. Both interior vertical support 140 and exterior vertical support 142 are shown as tubular members

having circular cross-sections. Members having alternative cross-sectional configurations could be used with the only requirement being that the interior vertical support 140 have an exterior dimension less than the interior dimension of the exterior vertical support 142 such that the interior vertical support 140 is adjustably slidable within the exterior vertical support 142. A top  
5 end 144 of the interior vertical support 140 includes an end plate 146. Attached to the end plate 146 is an attachment bracket 148. Attachment bracket 148 includes an attachment throughbore 149 and can include a grooved surface corresponding to the grooved surface on the tilt bracket 130. A tilt fastener 153, for example a spring loaded pin or a nut and bolt combination, inserts through attachment throughbore 149 and the tilt bracket throughbore while the grooved surfaces  
10 of the tilt bracket 130 and attachment bracket 148 intermesh such that the target assembly 102 is coupled to the vertical support assembly 104. Interior vertical support 140 includes a plurality of interior coupling throughbores 150 corresponding to an exterior coupling throughbore 152 on the exterior vertical support 142. A vertical positioning fastener 154, such as a nut and bolt or a spring loaded retaining pin, extends through the aligned exterior coupling thoroughbore 152 and  
15 the desired interior coupling throughbore 150 to fix the vertical height of the vertical support assembly 104. A bottom end 156 of the exterior vertical support 142 is attached to the base assembly 106.

Base assembly 106 comprises a base 158 having a generally rectangular configuration defining a front 160, a rear 162 and a pair of sides 164a, 164b. Base assembly 106 comprises a  
20 pair of front wheels 166a, 166b and a pair or rear wheels 167a, 167b. The wheels 166a, 166b, 167a, 167b can be individually mounted to the base frame 158 or can share a common axle. Wheels 166a, 166b, 167a, 167b are positioned such that the wheel travel is parallel to sides 164a,

164b. Base 158 includes a top surface 168 and a bottom surface 170. Base 158 preferably has a hollow interior that can be filled with material such as sand or water to provide additional weight for anchoring the position of the elevated golf target 100. Base 158 further includes a plurality of extensions 174 hingedly attached to the base frame 158 to provide additional stability to the elevated golf target 100. Extensions 174 can include an adjustable landing pad 175, for example a screwable foot, to allow for leveling of the base 158. When not in use, extensions 174 can fold up or to the side. As shown in FIG. 5, front 160 and bottom surface 170 can be adapted to include a towing receiver 176 to allow towing by a golf range implement such as a tractor or a manual dolly.

An alternative embodiment of an elevated golf target 200 is depicted in FIG. 7. Elevated golf target 200 comprises a target assembly 202, a vertical support assembly 204 and a motorized base assembly 206. In general, target assembly 202 and vertical support assembly 204 are substantially similar to target assembly 102 and vertical support assembly 104 respectively.

In general, elevated golf target 200 is configurable in a multitude of positions including tiltable adjustment of the target assembly 202 from a parallel orientation with respect to the ground to a perpendicular position with respect to the ground. Target assembly 202 is also vertically adjustable with respect to the ground in conjunction with the vertical support assembly 204. Similarly, to elevated golf target 100, the elevated golf target 200 is portable. However, the use of motorized base assembly 206 provides the elevated golf target 200 with a self-contained power source to provide the portability feature.

Tiltable adjustment of the target assembly 202 is accomplished through the interaction of an angle bracket 207, an adjustment member 208 and a coupling bracket 210. Angle bracket



207, comprising a pair of brackets or a channel member, is attached to the rear of the target assembly 202. Angle bracket 207 includes a plurality of angle throughbores 212 as well as an angle attachment thoroughbore 214. Adjustment member 208 includes a first end 216 and a second end 218. Second end 218 can have an external thread or other suitable surface treatment such as grooves or teeth. First end 216 can include an attachment throughbore corresponding to the angle throughbores 212 such that an angle fastener 219 can be slidably inserted to attach angle bracket 207 and adjustment member 208. Alternatively, first end 216 can include a pair of attachment members, for example spring loaded pins, adapted to individually insert into angle throughbores 212. Coupling bracket 210 is attached to the vertical support assembly 204. Coupling bracket 210 includes an adjustment means 220, such as a threaded receiver or a mechanical, hydraulic or pneumatic jack, adapted to receive the second end 218. Coupling bracket 210 also includes a coupling throughbore 222 corresponding to the angle attachment thoroughbore 214. A coupling fastener 224 is slidably inserted through the coupling bore 222 and the angle attachment thoroughbore 214 such that the coupling bracket 210 and angle bracket 207 are fixedly attached. The tilt angle of the target assembly 202 is adjusted by attaching the adjustment member 208 to a selected angle throughbore 212. Once the adjustment member 208 is attached to the angle bracket 207, additional adjustment is accomplished by varying the position of the adjustment member 208 with the adjustment means 220.

As depicted, vertical support assembly 204 includes a bottom end 226 operably connected to a golf cart 228. Golf cart 228 includes a plurality of support arms 230 connecting a cart floor 232 to the vertical support assembly 204 for supporting and maintaining the position of the vertical support assembly 204 with respect to the golf cart 228. The golf cart 228 is

preferably a standard golf cart design with cart floor 232 being reinforced to hold and secure the vertical support assembly 204. Golf cart 228 includes an engine, for example a battery powered or internal combustion engine, providing drive power such that the physical location of the elevated golf target 200 can be varied.

5           Another alternative embodiment of an elevated golf target 300 is depicted in FIG. 8. Elevated golf target 300 comprises a target assembly 302, a vertical support assembly 304 and a base frame assembly 306. In general, target assembly 302 and vertical support assembly 304 are substantially similar to target assembly 102 and vertical support assembly 104 respectively.

          In general, elevated golf target 300 is configurable in a multitude of positions including  
10   tiltable adjustment of the target assembly 302 and vertical adjustment of the target assembly 302 in conjunction with the vertical support assembly 304. Similarly, to elevated golf target 100, the elevated golf target 300 is portable.

          As depicted, vertical support assembly 304 includes a bottom end 307 operably connected to the base frame assembly 306. Base frame assembly 306 includes a box frame 308  
15   defining a front 310, a rear 312 and a pair of sides 314a, 314b. Box frame 308 is comprised of a plurality of welded or similarly attached frame members 316. Box frame 308 has an open top 318 and a floor 320 which are defined by a plurality of vertical frame members 322. Open top 318 allows for heavy objects, such as sandbags, weights, bricks, or blocks, to be placed within the box frame 308 such that the heavy objects reside on the floor 320 and assist with anchoring  
20   and retaining the elevated golf target 300 in position. Bottom end 307 attaches to floor 320 while a plurality of support members 324 support and retain the vertical support assembly 304. A plurality of extensions 326 project outward from the box frame 308 to provide increased

stability to the elevated golf target 300. Extensions 326 are preferably hingedly attached to the box frame 308 for upward or sideway retraction. Extensions 326 can include a leveling foot 327. Attached proximate the rear 312 is a pair of wheels 328a, 328b mounted such that their wheel path is parallel to the sides 314a, 314b. The front 310 can include one or more leveling members  
5 330 in proximity to the sides 314a, 314b such that when the elevated golf target 300 is positioned, the box frame assembly 306 can be adjusted to be generally level or parallel with the ground. A towing member 332 is attached to the front 310 such that the elevated golf target 300 can be towed to a desired location by a golf range implement, such as a tractor or manual dolly.

In actual use, the elevated golf target 100 can be used individually or a plurality of  
10 elevated golf targets 100, 200 and 300, in any combination, can be used to provide multiple targets as shown in FIG. 9. Generally, a worker tows or drives the elevated golf target 100 to a desired location on a golf range 170, most typically based on a distance measurement from a tee area 172, for example 25 to 250 yards from the tee area 172.

Once positioned on the golf range 170, the configuration and presentation of the target  
15 assembly 102 can be adjusted with respect to a golfer at the tee area 172. Based upon a variety of factors such as distance to the elevated golf target 100 and the level of difficulty an operator desires a golfer to confront, the height and display angle of the target assembly 102 can be adjusted. For example, the display angle is adjusted by adjusting the position of the tilt bracket 130 with respect to the attachment bracket 148 and fixing the tilt position using the tilt fastener  
20 153 when the desired display angle is achieved. Tilt bracket 130 and attachment bracket 148 are positionally fixed due to the intermeshing of their corresponding grooved surfaces. The height of the target assembly 102 is adjustable by removing the vertical positioning fastener 154,

adjustably sliding the interior vertical support 140 either into or out of the exterior vertical support 142 and reinserting the vertical positioning fastener 154 when the target assembly 102 is at a desired height and the interior coupling throughbores 150 and exterior coupling throughbore 152 are suitably aligned.

5           Once the elevated golf target 100 has been positioned and configured with respect to the tee area 172, a golfer can begin aiming for and hitting golf balls at the elevated golf target 100. The combination of the target surface 108, support structure 112, target hole 114 and target flag 116 present a target substantially resembling a putting green that a golfer might experience during a round of golf.

10           In addition to resembling a putting green, the construction of the target assembly 102 provides performance characteristics that help to promote the retainment of golf balls on the target surface 108 thus providing the golfer with a practice experience. The sag of the target surface 108 along with the air gap 132 allows the target surface 108 to absorb the impact energy of the golf ball such that the bounce of a golf ball hitting the target surface 108 is reduced.

15           Second, the dish shaped internal structure defined by the support structure 112 helps to focus the bounce path of the golf ball within the perimeter defined by the upwardly projecting perimeter wall 110. Once the size and path of the golf ball bounce has been effectively controlled, the upwardly projecting perimeter wall 110 retains the golf ball on the target surface 108. In some instances, the dish shape of the target assembly 102 will cause the golf ball to be directed into the

20           target hole 114. The target hole 114 can be equipped with a sensor or switch to provide an indication of when such a hole-in-one occurs. In the event that the golf ball is retained within the target surface 108 but does not enter the target hole 114, the golf ball can roll downward into the

collector hole 118 such that it falls to the ground or into a net 400, as shown in FIG. 10, such that the ball can be recovered by a standard ball recovery device.

In addition to presenting the target surface 108 to the golfer, the elevated golf target 100 can simultaneously provide visual information to golfers on the tee area 172 through the use of the visual display 134. The visual display 134 can include a fixed message such as an educational theme being taught by a professional on the golf range, advertisements for products, a course or tournament sponsor or the yardage from the tee area 172 to the elevated golf target 100 as shown in Fig. 9. In addition, the visual display 134 can be electronic, for example a liquid crystal display, a plasma display or other electronic display in which the visual symbol 138 can be continuously changed. For example, the visual display could display a live stock ticker, sports results, the tee box status for the first hole at a golf course or even live or recorded video broadcasts. The visual display can be battery powered or include a plug style connector for being attached to a remote power supply. Alternatively, the visual display 134 could be powered by the engine of golf cart 228 or through a battery pack mounted on the base assembly 106 or base assembly 306.

When positioned on the golf range 170, the elevated golf target 100 is maintained in an upright position through a combination of features on the target assembly 102 and the base assembly 106. First, the support openings 128, air gap 132 and target surface 108 allow wind to blow through the elevated golf target 100 rather than being captured like a sail. Secondly, the base 158 can be filled with weighting means to anchor the elevated golf target 100 in position. Finally, the extensions 174 effectively increase the size of the base assembly 106 such that the elevated golf target 100 cannot be blown or knocked over.

While the aforementioned embodiments have been described with reference to preferred embodiments, it will be obvious to one skilled in the art that various alternative embodiments are possible without departing from the spirit and scope of the present invention. It will be understood that the preferred embodiments are for illustrative purposes only and are not intended

5 to limit the scope of the present invention.